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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/657,794	09/08/2000	Christopher P. Laurello	102094-100	3235

27267 7590 05/19/2003

WIGGIN & DANA LLP  
ATTENTION: PATENT DOCKETING  
ONE CENTURY TOWER, P.O. BOX 1832  
NEW HAVEN, CT 06508-1832

EXAMINER

LAVILLA, MICHAEL E

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 05/19/2003

11

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-11

# Office Action Summary

Application No.  
09/657,794

Applicant(s)  
LAURELLO ET AL.

Examiner  
LA VILLA

Art Unit  
1775



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Feb 26, 2003
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 12-23 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-9, 12-18, and 23 is/are rejected.
- 7) ☒ Claim(s) 5, 10, and 19-22 is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some\* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_ 6) ☐ Other:

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:
2. A person shall be entitled to a patent unless –
3. (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
4. (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
5. Claims 1-4, 6-9, 12-18, and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Kodama et al. USP 6,403,234 for the reasons of record in the Office Action mailed on 25 September 2002. Comparative Example 21 in Table 1 teaches an anti-tarnishing layer of 1000 Å thickness. With respect to Claims 8 and 9, the NiP layer may be identified with the claimed barrier layer and the NiSn alloy layer, that would also comprise phosphorus and that forms upon reflow treatment, may be identified with the claimed anti-tarnishing layer.
6. Claims 13 and 15-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshiaki et al. JP 9-291394 for the reasons of record in the Office Action mailed on 25 September 2002.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kodama et al. USP 6,403,234. Kodama teaches a copper substrate coated with a nickel/phosphorus layer which is further coated with a tin alloy or tin layer; the laminate can be heated to diffuse the phosphorus into the tin layer; the phosphorus layer is exemplified as 1000 and 2000 Å thick and greater and the phosphorus composition of the diffusion treated coating is 0.02 wt.%. See Kodama (Abstract; col. 2, line 18 through col. 4, line 10; Tables 1 and 2 – including Comparative Ex. 21; and Claims). Kodama does not exemplify using a chromium layer between the intermediate layer and base substrate, but teaches that effective laminates may comprise such a chromium layer. It would have

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been obvious to one of ordinary skill in the art at the time of the invention to utilize the chromium layer of Kodama between the intermediate layer and substrate of Kodama as Kodama teaches that such a layer provides effective laminates.

***Response to Amendment***

- I. In view of applicant's amendments and arguments, applicant traverses the section 112, first paragraph enablement rejections of the Office Action mailed on 25 September 2002. Rejections are withdrawn.
- II. In view of applicant's amendments and arguments, applicant traverses the section 112, second paragraph rejections of the Office Action mailed on 25 September 2002. Rejections are withdrawn.
- III. In view of applicant's amendments and arguments, applicant traverses the section 102 rejection over Yoshiaki of the Office Action mailed on 25 September 2002. Rejections over Claim 1 and those claims dependent on it are withdrawn. With respect to Claim 13 and those claims dependent on it, applicant argues that Yoshiaki teaches a coating having a least amount of tin at the interface with the base aluminum

material, whereas applicant claims the greatest amount of antitarnish agent at the substrate interface. Applicant teaches that aluminum is a possible antitarnishing agent. In the coating layer, the greatest amount of aluminum in the coating concentration gradient is at the second surface as required by the claim. Hence, rejection is appropriate.

- IV. In view of applicant's amendments and arguments, applicant traverses the section 102 and 103 rejections over Guenin of the Office Action mailed on 25 September 2002. Rejections are withdrawn.
- V. In view of applicant's amendments and arguments, applicant traverses the section 102 and 103 rejections over Cavallotti of the Office Action mailed on 25 September 2002. Rejections are withdrawn since Cavallotti does not teach tin alloys having at least 50 weight percent tin.
- VI. In view of applicant's amendments and arguments, applicant traverses the section 102 rejection over Kodama of the Office Action mailed on 25 September 2002. Applicant argues that Kodama does not teach that using a zinc coating confers

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antitarnishing properties or what a proper amount of zinc would be to confer antitarnishing properties. While Kodama does refer to zinc as a possible intermediate layer material, most of the relied upon portions of Kodama do not appear to pertain to zinc, and so it is somewhat unclear what is applicant's grounds of traversal. Kodama does appear to teach antitarnishing effects when Kodama refers to the scavenging effects of P or B in the coating layer and their effectiveness in maintaining contact resistance. See Kodama (col. 3, line 64 through col. 4, line 10). Hence, rejection is appropriate.

- VII. In view of applicant's amendments and arguments, applicant traverses the section 103 rejection over Fister in view of Guenin of the Office Action mailed on 25 September 2002. Rejection is withdrawn since Fister does not suggest an antitarnishing layer as claimed nor the claimed gradient in concentration.

***Allowable Subject Matter***

10. Claims 5, 10, and 19-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Neither the



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reviewed prior art nor the prior art of record teaches or renders obvious the claimed subject matter of these claims. The claimed articles having the claimed thickness, lubricants, and barrier layers are not taught or suggested.

### CONCLUSION

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael La Villa whose telephone number is (703) 308-4428. The examiner can normally be reached on Monday through Friday.
12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (703) 308-3822. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.
13. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Michael La Villa  
May 17, 2003

